

Surface Micromachined Arrays of Transition-Edge Detectors, Phase I

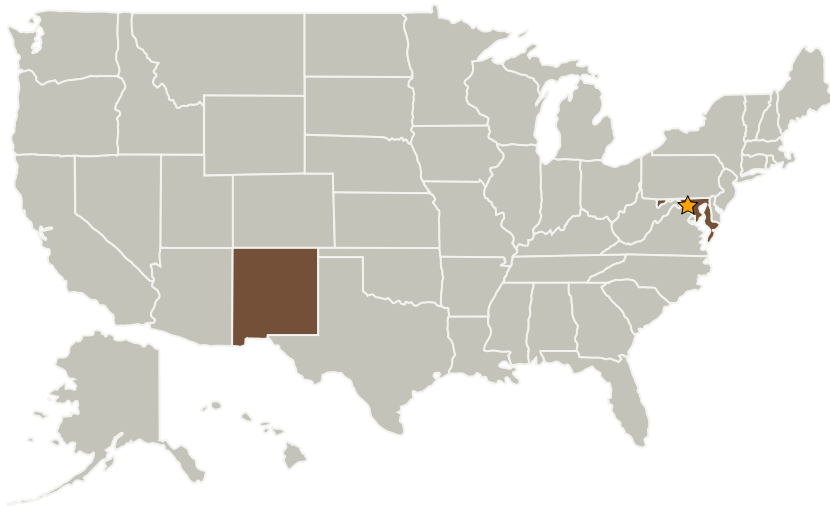


Completed Technology Project (2004 - 2004)

Project Introduction

An innovative surface micromachining technique is described for the fabrication of closely-packed arrays of transition edge sensor (TES) x-ray microcalorimeters. This technique enables individual TES microcalorimeters to be suspended on a thin membrane for thermal isolation from the bath temperature. The TES detectors are fabricated from normal metal/superconductor bilayers with a transition temperature of around 0.1 K. The proposed surface micromachining technique will simplify the fabrication of closely-packed TES microcalorimeter arrays, which are needed for numerous applications in astronomical x-ray spectroscopy.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
STAR Cryoelectronics, LLC	Supporting Organization	Industry	Santa Fe, New Mexico

Primary U.S. Work Locations

Maryland	New Mexico
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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Robin H Cantor

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.1 Detectors and Focal Planes